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☐ 1: Nippon Jinzo Gakkai Shi. 1998 Jan;40(1):1-7.

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[Niceritrol decreases serum phosphate levels in chronic hemodialysis patients]

[Article in Japanese]

Shimoda K, Akiba T, Matsushima T, Rai T, Abe K, Hoshino M.





Seisyokai Hijiribashi Clinic, Tokyo, Japan.

Since phosphorus retention in hemodialysis (HD) patients is known to be an important factor in the development of secondary hyperparathyroidism and renal osteodystrophy, phosphate binders have been needed for the control of serum phosphate levels (P). However, the calcium-containing phosphate binders that have been used widely can cause a rise in serum calcium levels and cause secondary hypoparathyroidism. We have recently experienced decreases in P after the administration of niceritrol (NT), a prodrug of nicotinic acid, for the treatment of low HDL-cholesteremia (HDL-C) in HD patients. The aim of the present study was to assess the mechanism of the P-lowering effect of NT in comparison with nicomol (NC), another prodrug of nicotinic acid. NT (750 mg/day) or NC (600 mg/day) was given orally to 10 or 14 HD patients respectively. Blood samples were collected before the first dialysis of each week for the determination of serum urea nitrogen (UN), Cr, Ca, P, total cholesterol (TC), triglyceride (TG) and HDL-C. Serum nicotinic acid concentration (NAC) by gas chromatograph mass-spectrometry method was determined before, 4 weeks and 8 weeks after the administration of these drugs. After NT administration, P was decreased from 6.2 +/- 0.4 mg/dl to 5.1 +/- 0.4 mg/dl (1st week, $p < 0.001$, Mean +/- SE) and 4.5 +/- 0.3 mg/dl (2nd weeks, $p < 0.001$) with no change in UN, Cr or Ca levels; these significant decreases in P lasted for 8 weeks. NAC increased significantly after NT administration from 25.5 +/- 1.3 ng/ml to 549.8 +/- 102.2 ng/ml (4 weeks, $p < 0.01$) and 431.7 +/- 51.4 ng/ml (8 weeks, $p < 0.01$). HDL-C also increased (33.6 +/- 4.0 mg/dl vs 42.7 +/- 4.6 mg/dl, $p < 0.05$), but TC and TG did not change. In contrast, no significant changes were observed in P, NAC and

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HDL-C after NC administration. These discrepancies could be ascribed to the differences in serum NAC levels. These data suggest that NT could be useful for the control of P in HD patients. However further studies are needed to confirm the mechanism of the P-lowering effect of NT.

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